



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,931	08/05/2003	Wayne A. Sohren	P02,0499 (H0002385)	3825

7590 09/19/2005

HONEYWELL INTERNATIONAL INC.
Law Dept. AB2
P.O. Box 2245
Morristown, NJ 07962-9806

EXAMINER

ROY, ANURADHA

ART UNIT	PAPER NUMBER
----------	--------------

3736

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,931

Applicant(s)

SOEHREN ET AL.

Examiner

Anuradha Roy

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on August 5, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☒ Claim(s) 4, 10, 12, 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

- [01] Claims 1 & 2 are objected to, in that “Kalman filter” appears to be trademarked.
Applicant can use the generic term as long as it retains the same meaning as the trademark.
- [02] Examiner suggests applicant amends claim 12, line 3 to “input preprocessing unit”
from “input processing unit.”
- [03] It is unclear if the applicant is claiming the human body. If the applicant is intending to
claim the human body that would be non-statutory subject matter under the 35 U.S.C 101.
However, it appears more likely the applicant has not intended to claim the human body.
For clarification purposes, the examiner suggests amending claims 4, 10, & 14. For
example, claim 4, line 2 to “a personal status sensor adapted for mounting on a human”
from “a personal status sensor for mounting on a human.”

[04]

Claim Rejections - 35 USC § 101

- [05] 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition
of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

- [06] Claim 11 is rejected under 35 U.S.C 101 because the claimed invention is directed to
non-statutory subject matter. Claim 11 claims a “human model provided as input.” This
recites a positive relationship to the human body. However, the human body is a non-

statutory subject matter and cannot be positively recited. Therefore, applicant should amend the claim to recite that the system is adapted to receive an input from a human model.

Claim Rejections - 35 USC § 102

[07] Claim 4, 5, 6, 9, 15, 16, & 17 rejected under 35 U.S.C. 102(b) as being anticipated by Root et al.

[08] Regarding claims 4, 5, 6, & 9 Root et al. discloses a personal status sensor (611/612) that includes a heart rate sensor (611); motion sensors (301/604) for mounting on a human; a motion classification unit (602) to receive data from motion sensor, an output unit (605); energy estimator unit (Figure 11 – calories burned); health monitor unit (Figure 11 – heart rate); alarm upon traversal of a health threshold (Column 2, lines 17 – 25); and a filter (Column 7, lines 52 - 56).

[09] Regarding claims 15, 16, & 17, Root et al. discloses a method for monitoring human motion comprising of sensing motion (Abstract) and metabolism rate (Figure 11 – calories burned) of a human, classifying the motion (Column 8, lines 5 – 10), estimating energy expended (Column 7, lines 45 – 47), triggering an alarm if a health threshold is traversed (Column 2, lines 17 – 25) and providing landmarking position (Abstract).

[10]

Claim Rejections - 35 USC § 103

[11] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[12] Claims 1, 2, 3 & 7 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,013,007 to Root et al. in view of US Patent No. 6,162,191 by Foxlin et al.

[13] In regards to claims 1 & 2 Root et al. discloses a human motion and classification system; sensors for sensing a human (611/612/610) including a personal status sensor (611/612) for mounting on a human; a motion classification unit (602); an energy estimator unit (Figure 11– calories burned); and a filter (Column 7, lines 52 - 56). However Root et al. does not disclose specifically a Kalman filter. Foxlin teaches the use of a Kalman filter, which makes use of the statistical features of all of the signals, analyzes the raw sensor signals and then generate output signals that decrease the risk of error in the signal readings, and makes use of the compensating sensor signals even during time periods when they are subject to accelerations. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the filter disclosed by Root et al. with a Kalman filter as taught by Foxlin et al for the reasons stated above.

[14] Regarding claim 3, Root et al. discloses a human motion classification and measurement system that comprises of an alarm (Figure 11 & Column 2, lines 17 – 25) to indicate a traversal of a threshold.

[15] Regarding claim 7, Root et al. discloses a personal status sensor (611/612); motion sensors (301/604); a motion classification unit (602); and an output unit (605). However, Root et al. does not address the motion sensors are specifically inertial sensors including

gyroscopic sensors and accelerometers. However, Foxlin et al. discloses the motion sensors that are specifically inertial sensors, which included gyroscopic sensors and accelerometers. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use motion sensors that are specifically inertial sensors, which include gyroscopic sensors and accelerometers in order to enhance tracking of the positions and motion of a human body.

Additional Claim Rejections - 35 USC § 103

[16] Claims 8, 10, 11, 12, 13, & 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Root et al. as applied to claim 4 above, and further in view of Vock et al. US Patent No. 6,885,971 and Foxlin et al. US Patent No. 6,162,191.

[17] In regards to claim 8, Root et al. disclose a human motion classification and measurement system, but does not disclose an altimeter or a magnetic sensor. However, Vock et al. a reference in an analogous art discloses an altimeter for mounting on a human and having an output connected to said motion classification unit (Column 1, lines 20 – 25; Column 59, lines 14 – 16; & Claim 20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include an altimeter to sense the drop distance, as stated below:

“Those skilled in the art should appreciate that an altimeter can also be placed in the watch...so that...the user is informed of drop distance.” (Column 45 lines 3-5)

[18] In regards to the magnetic sensor, as stated above Root et al. discloses a human motion and measurement system, but does not disclose the magnetic sensor. However, Foxlin et al. a reference in an analogous art discloses a magnetic sensor for mounting on

Art Unit: 3736


the human and an output connected to said motion classification unit (Abstract; Figure 3, 112; Column 4, lines 9 - 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include magnetic sensors into the system to further track the orientation of a body to which it is mounted (Column 1, lines 51 - 67) and for the reason stated below:

“Magnetic trackers are the most popular because of their convenience of operation (they don't even require line of sight).” (Column 1, lines 37 - 39)

- [19] In regards to claim 10, Root et al. in view of Foxlin et al. discloses an inertial navigation unit (306) connected to receive data from the inertial sensors and having a navigation state output. In regards the input preprocessing unit in claim 10, the motion classification unit disclosed by Root et al. in view of Foxlin et al. and Vock et al. (602) inherently has an input preprocessing unit having inputs connected to said global positioning satellite sensor and said magnetic sensor and said altimeter and said motion classification unit and having an output.
- [20] Regarding claim 11, the input preprocessing unit and said filter are connected, thus there is inherently a measurement prefilter.
- [21] In regards to claim 12, an input preprocessing unit inherently has an initial input.
- [22] With regards to claim 13, the above sensors, which are adapted to mount onto a human, inherently has a human input to the input preprocessing unit.
- [23] With regards to claim 14, all of the components of the human motion classification and measurement system have been rejected for all for the reasons discussed previously.

Conclusion

- [24] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Foxlin (20030045816) publishes a "Motion Tracking System," which tracks the motion of a body and makes use of an inertial sensor and Kalman filter.
- [25] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anuradha Roy whose telephone number is (571) 272-6169 and whose email address is anuradha.roy@uspto.gov. The examiner can normally be reached between 8:00am and 4:00pm.
- [26] If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726.
- [27] Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MAX F. HINDENBURG
SENIOR PATENT EXAMINER
TECHNOLOGY CENTER 3700

Anuradha Roy
Patent Examiner
Art Unit 3736